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EXAMINER	
LUND, JEFFRIE ROBERT	
ART UNIT	PAPER NUMBER
1792	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/747,803	IM ET AL.	
	Examiner	Art Unit	
	Jeffrie R. Lund	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 35-58* is/are pending in the application.

4a) Of the above claim(s) *41-58* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 35-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. Applicant is advised that should claim 2 be found allowable, claim 35 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3, 35-37, 39, and 40 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Homma et al, US Patent 5,777,300, in view of Ohmi et al, US Patent 5,100,495.

Homma et al teaches an apparatus for depositing a thin film, the apparatus comprising: a reaction chamber 102; a reaction gas provider to supply an inert gas (N_2) 132 to the reaction chamber; an oxidant generator (i.e. a gas canister) to supply a first oxidant (O_2) 130 and a second oxidant (pure water) 138 to the reaction chamber; and an air drain 114 to exhaust gas from the apparatus. The oxidant provider is operable to supply the second oxidant (pure water) to the reaction chamber using the first oxidant (O_2) as a transfer gas. The oxidant provider is further operable to supply the first oxidant to the reaction chamber without the second oxidant by closing valve 136. The oxidant provider is operative to supply the second oxidant (pure water) to the reaction chamber from a liquid source of the second oxidant (see figures 7 and 8). (Figures 6-8, second embodiment column 8 line 55 through column 11 line 67)

Homma et al differs from the present invention in that Homma et al does not teach: an oxidant container to store the second oxidant; a first supply line to supply the first oxidant directly to the reaction chamber from the oxidant generator; a second supply line fluidly connecting the oxidant generator to the reaction chamber via the oxidant container to supply the second oxidant to the reaction chamber using the first oxidant as a transfer gas; a first process valve installed in the first supply line to selectively interrupt and permit flow of the first oxidant toward the reaction chamber; a first selection valve that operates inversely to the first process valve, to selectively interrupt and permit the flow of the first oxidant toward the oxidant container from the

oxidant generator; a second process valve that operates inversely to the first process valve to selectively interrupt and permit flow of the second oxidant toward the reaction chamber from the oxidant container; or that the oxidant container includes: a canister, wherein the second oxidant is disposed in the canister up to a predetermined level; a pressurization line positioned over the second oxidant in the canister to provide the first oxidant to the canister; and a gas supply line positioned over the second oxidant in the canister to exhaust the mixture gas of the first and second oxidants from the canister; or wherein the pressurization line is connected to the oxidant generator and the gas supply line is connected to the reaction chamber.

Ohmi et al teaches a well know type of vaporizer that includes: a precursor container 1 to store a liquid precursor; a first supply line to supply a transfer gas directly to the reaction chamber 3 from the transfer gas generator; a second supply line fluidly connecting a transfer gas 2 to the reaction chamber via the precursor container 1 to supply the precursor to the reaction chamber using a transfer gas; a first process valve 13, 14 installed in the first supply line to selectively interrupt and permit flow of the transfer gas toward the reaction chamber; a first selection valve 15 that operates inversely to the first process valve 13, 14 to selectively interrupt and permit the flow of the transfer gas toward the precursor container from the transfer gas generator; a second process valve 16 that operates inversely to the first process valve 13, 14 to selectively interrupt and permit flow of the precursor toward the reaction chamber from the precursor container; or that the oxidant container includes: a canister, wherein the precursor is disposed in the canister up to a predetermined level; a pressurization line

positioned over the precursor in the canister to provide the transfer gas to the canister; and a gas supply line positioned over the second oxidant in the canister to exhaust the mixture gas of the transfer gas and precursor gas from the canister; or wherein the pressurization line is connected to the transfer gas and the gas supply line is connected to the reaction chamber. (Figure 1 and 18)

The motivation for replacing the vaporizer of Homma et al with the vaporizer of Ohmi et al is to provide an alternate vaporizer to vaporize the water in the apparatus of Homma et al. Furthermore, it has been held that the simple substitution of one known element for another to obtain predictable results is obvious (see *KSR International Co. v. Teleflex Inc.*). In this case, it would have been obvious to replace the vaporizer of Homma et al that is used to vaporize a liquid precursor with vaporizer of Ohmi et al that is also well known to vaporize a liquid precursor.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the vaporizer of Homma et al with the vaporizer of Ohmi et al.

5. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Homma et al and Ohmi et al as applied to claims 1-3, 35-37, 39, and 40 above, and further in view of Campbell et al, US Patent Application 2003/0033980 A1, and Sha et al, JP Patent 2002-217183.

Homma et al and Ohmi et al differs from the present invention in that they do not teach that the oxidant generator is operable to generate ozone.

Campbell et al teaches the use of water and ozone as oxidant gases (paragraph

0018).

Sha et al teaches an oxidant generator that is operable to generate ozone. (Figure 1)

The motivation for replacing the O_2 source of Homma et al and Ohmi et al with the ozone source of Sha et al is to supply the apparatus of Homma et al and Ohmi et al with an alternate well known oxidant (i.e. ozone) as taught by Campbell et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the oxidant generator of Homma et al and Ohmi et al with the vaporizer of Sha et al to supply ozone as an oxidant as taught by Campbell et al.

6. Claims 1-3 and 35-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sha et al, JP Patent 2002-217183, in view of Ohmi et al, US Patent 5,100,495, and Campbell et al, US Patent Application 2003/0033980 A1.

Sha et al teaches an apparatus for depositing a thin film, the apparatus comprising: a reaction chamber 5; a reaction gas provider to supply a reaction gas ($Ta(OC_2H_5)_5$ and inert gas (He) to the reaction chamber; an oxidant provider to supply a first oxidant (O_2) and a second oxidant (O_3) to the reaction chamber; and an air drain to exhaust gas from the apparatus (paragraph 30). The oxidant provider of Sha et al is capable of supplying the second oxidant (O_3) to the reaction chamber using the first oxidant (O_2) as a transfer gas or supplying the first oxidant (O_2) to the reaction chamber without the second oxidant (O_3). (Entire document)

Sha et al differs from the present invention in that Sha et al does not teach: an

oxidant container to store the second oxidant (water); a first supply line to supply the first oxidant directly to the reaction chamber from the oxidant generator; a second supply line fluidly connecting the oxidant generator to the reaction chamber via the oxidant container to supply the second oxidant (water) to the reaction chamber using the first oxidant as a transfer gas; a first process valve installed in the first supply line to selectively interrupt and permit flow of the first oxidant toward the reaction chamber; a first selection valve that operates inversely to the first process valve, to selectively interrupt and permit the flow of the first oxidant toward the oxidant container from the oxidant generator; a second process valve that operates inversely to the first process valve to selectively interrupt and permit flow of the second oxidant (water) toward the reaction chamber from the oxidant container; or that the oxidant container includes: a canister, wherein the second oxidant is disposed in the canister up to a predetermined level; a pressurization line positioned over the second oxidant (water) in the canister to provide the first oxidant to the canister; and a gas supply line positioned over the second oxidant (water) in the canister to exhaust the mixture gas of the first and second oxidants from the canister; or wherein the pressurization line is connected to the oxidant generator and the gas supply line is connected to the reaction chamber.

Ohmi et al teaches a well know type of vaporizer that includes: a precursor container 1 to store a liquid precursor; a first supply line to supply a transfer gas directly to the reaction chamber 3 from the transfer gas generator; a second supply line fluidly connecting a transfer gas 2 to the reaction chamber via the precursor container 1 to supply the precursor to the reaction chamber using a transfer gas; a first process valve

13, 14 installed in the first supply line to selectively interrupt and permit flow of the transfer gas toward the reaction chamber; a first selection valve 15 that operates inversely to the first process valve 13, 14 to selectively interrupt and permit the flow of the transfer gas toward the precursor container from the transfer gas generator; a second process valve 16 that operates inversely to the first process valve 13, 14 to selectively interrupt and permit flow of the precursor toward the reaction chamber from the precursor container; or that the oxidant container includes: a canister, wherein the precursor is disposed in the canister up to a predetermined level; a pressurization line positioned over the precursor in the canister to provide the transfer gas to the canister; and a gas supply line positioned over the second oxidant in the canister to exhaust the mixture gas of the transfer gas and precursor gas from the canister; or wherein the pressurization line is connected to the transfer gas and the gas supply line is connected to the reaction chamber. (Figure 1 and 18)

Campbell et al teaches the use of water and ozone as oxidant gases (paragraph 0018).

The motivation for adding the vaporizer of Ohmi et al to the apparatus of Sha et al is to provide a means of supplying a mixture of ozone and water to the processing chamber of Sha et al. The motivation for supplying a mixture of ozone and water to the apparatus of Sha et al is to provide an alternate oxidant to the reaction chamber of Sha et al. Alternately, it would have been obvious to add the vaporizer of Ohmi et al to the apparatus of Sha et al to enable the apparatus of Sha et al to deposit aluminum oxide as taught by Campbell et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the vaporizer of Ohmi et al to the apparatus of Sha et al as taught by Campbell et al.

Response to Arguments

7. Applicant's arguments filed February 27, 2008 have been fully considered but they are not persuasive. The arguments are base on the use of the system. It has been held that: claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danley*, 120 USPQ 528, 531, (CCPQ 1959); "Apparatus claims cover what a device is, not what a device does" (Emphasis in original) *Hewlett-Packard Co. V. Bausch & Lomb Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990); and a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus "if the prior art apparatus teaches all the structural limitations of the claim *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Also see MPEP 2114An apparatus is defined by what it is not what it does. The present invention is directed to an oxidant supply system. The combined prior art teaches all of the structural limitations and is capable of functioning in the claimed manner. Applicant has present no evidence that the combined prior art cannot function as suggested by the Examiner.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (10:00 am - 9:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeffrie R. Lund/
Primary Examiner
Art Unit 1792

JRL
5/25/08